

YASHCHENKO, V.A., inzh.

Vacuum heat treatment furnace [from "Stahl und Eisen," no.20,
1960]. Met. i gornorud. prom. no.1:87 Ja-F '62.

(MIRA 16:6)

(Germany, West—Furnaces, Heat treating)

YASHCHENKO, V.A., inzh.

Intensifying the processes of producing metal. Met. i gornorud.
prom. no.6:83 N-D '62. (MIRA 17:8)

YASHCHENKO, V.A., kand. tekhn. nauk

Most important reserve for increasing the efficiency of
blooming mills and slabbing mills. Met. i gornorud. prom.
no.1:34-35 Ja-F '64. (MIRA 17:10)

YASHCHENKO, V.A., kand.tekhn.nauk

All-Union conference of rolling mill workers. Mat. 1 gornorud.
prom. no. 2:81 Mr-Ap '64. (MIRA 17:9)

YASHCHENKO, V.A., kand. tekhn. nauk

Main objectives in improving the quality of rolled products.
Met. i gornorud. prom. no.4:38-40 J1-Ag '64.

(MIRA 18:7)

YASHCHENKO, V. (D.)

ca

27

Substitution of steam for carbon dioxide in the hydrogenation of oil. V. YASHCHENKO. *Moskovsko Zhirevo Delo* 1929, No. 5, 21-4; *Chimie & Industrie* 23, 437-8.

—Before removal of the catalyst after hydrogenation CO_2 is passed through the hydrogenation vessel. Passing steam at about $120-40^\circ$ (to prevent condensation) was found equally satisfactory.

A. PAPINEAU-COUTURE

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNDICATE

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COMMON ELEMENTS																										COMMON ELEMENTS																									
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YASHCHENKO, V. [B]																										PROCESSING AND PROPERTIES INDEX																									
<p>Hydrogenation tests in presence of nickel formate. V. Yashchenko. <i>Mashobolno Zhurnal</i> Delo 10, No. 11, 22-3(1934); <i>Chimie & Industrie</i> 34, 404. — $\text{Ni}(\text{HCO}_3)_2$ is prepd. from NiSO_4 and NaHCO_3. The filtered and dried product is mixed with oil in the proportion of 50 kg. per 500 kg. of oil previously raised to 80-120°. The mixt. is heated to 170-80°; H is passed through the retort, and the temp. is raised progressively to 220° in 2 hrs., to 420° in a further 2 hrs., and is held for 1 hr.; during these 5 hrs. of heating the $\text{Ni}(\text{HCO}_3)_2$ is reduced and hydrogen- ates the oil. Though the reduction, which takes place</p>																										<p>1 according to the equation $\text{Ni}(\text{HCO}_3)_2 = \text{Ni} + \text{CO} + \text{CO}_2 + \text{H}_2\text{O}$, theoretically does not require any H. It was found that the catalyst obtained in absence of H is inactive. Before reduction the $\text{Ni}(\text{HCO}_3)_2$ must be titrated with a well-refined oil of low acidity. Drying should be carried out at 70-100°. The catalyst obtained under these condi- tions is superior to the usual catalyst. A. P. C.</p>																									
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YASHCHENKO, A.D.

Purification of nickel sulfate solutions A. D. Yashchenko, Chemical Plant "Khimik", Moscow

The solutions of nickel sulfate obtained from hydrogenation of nickel and sulfuric acid contain about 0.5% of impurities consisting of iron, cobalt, and partially unreacted nickel. To remove these impurities, the solutions are treated with calcium hydroxide (Ca(OH)₂) to leave 4-5 g of acid. This solution is heated to 80-90°C and filtered for 4-6 hours. During that time, every 2-3 g of Ca(OH)₂ is added and the solution is analyzed for iron content to a limiting point of 0.01 g per 100 g of solution. After purification by the catalyst, the solution contains 0.02 g of iron per 100 g of solution and contains 1.3% NiSO₄.

YASHCHENKO, V.G.

Synoptic conditions promoting the fall of large amounts of
precipitation in Estonia. Sbor. rab. po sinop. no.5:92-98
'60. (MIRA 14:8)

1. Tallinskoye byuro pogody.
(Estonia--Precipitation (Meteorology))

YASHCHENKO, V.K.

Chemical analysis of ethereal oil of *Amorpha fruticosa* L. Soob.o
nauch.rab.chl.VKHO no.4:34-39 '54. (MIRA 10:10)
(Essences and essential oils) (Amorpha)

YASHCHENKO, V.K., kandidat farmatsvicheskikh nauk; TODOSHCHENKO, M.D.,
'starshiy prepodavatel'.

Introducing the burette system in pharmacy practice. Apt.delo 5 no.6:
7-10 N-D '56.

(BURETTES)

(PHARMACY)

(MIRA 10:1)

YASHCHENKO, V.K.; MURATOVA, I.O.; NOVIKOV, V.I.

Study of the complex of active substances and trace elements in
the raw material and preparations of Adonis vernalis L. Farmatsev.
zhur. 15 no.6:37-42 '60. (MIRA 14:11)

1. Kafedra tekhnologii likiv ta galenovikh preparativ (zav.kafedroy
dotsent V.K.Yashchenko) i kafedra farmakologii (zav.kafedroyu prof.
G.E.Batrak [Batrak, H.Ye.]) Dnipropetrovs'kogo medichnogo institutu.
(ADONIS) (PLANTS--CHEMICAL ANALYSIS)

HUBON, N.T.; YASHCHENKO, V.K.

Use of flame photometry in the analysis of pharmaceutical preparations containing sodium. Report No.1. Apt. delo 13 no.2:27-31
Mr-Ap '64. (MIRA 17:12)

1. Farmaceuticheskiy fakul'tet Vitebskogo meditsinskogo instituta.

LUKASHENKO, I.A., kand.tekhn.nauk; YASHCHENKO, V.V., inzh.

In-situ investigations of glass reinforced concrete elements of industrial buildings. Stroi.konstr. no.2:14-24 '65.

(MIRA 18:12)

1. Nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy Gosstroya SSSR, Kiyev (for Yashchenko).

S/096/62/000/011/005/006
E193/E383

AUTHORS: Gotlib, Ye.A., Polyakova, R.B. and Yashchenko, Ya.V.,
Engineers

TITLE: Welding of austenitic steels ЭИ-695Р (EI-695R) and
ЭП-17 (EP-17)

PERIODICAL: Teploenergetika, no. 11, 1962, 63 - 67

TEXT: Steels EI-695R (containing 0.08-0.11% C, 0.47-0.60% Si, 1.40-1.46% Mn, 13.9-14.3% Cr, 19.1-19.2% Ni, 2.68-2.75% W, 0.96-1.08% Nb, 0.005% B, 0.01% S and 0.02% P) and EP-17 (containing 0.10-0.11% C, 0.18-0.28% Si, 1.31-1.35% Mn, 16.51% Cr, 13.22-13.67% Ni, 2.27-2.40% W, 0.62-0.77% Nb, 0.005% B, 0.006% S and 0.016% P) were specified as materials for the steam pipe of the boiler ПК-31 (PK-31), the latter material being considered more suitable for parts of the conduit operating under supercritical conditions of steam, temperature and pressure. Before the boiler could be fabricated, it was necessary to determine the optimum welding procedure and to train the welders; the results of this work are described in the present paper. The metal-arc welding technique was used to make test butt-joints

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Welding of ...

S/096/62/000/011/005/006
E193/E383

in tubes of the following sizes: 32 x 7.5 mm and 76 x 18 mm for steel EI-695R; 76 x 16.5 mm for steel EP-17. Since the main object of the investigation was to establish conditions under which the proneness of the welds to develop hot cracks could be eliminated, several electrodes were used in the tests; these are listed in Table 2 together with the chemical analysis of weld deposits obtained with these electrodes. Single-V bevel was used in the case of thin-walled tubes, both single-V and single-U bevels, with an included angle of 20 or 30°, being tried in preparing the edges of thick-walled tubes. After the deposition of each bead weld, the weld was cooled to about 100 °C and the slag residues were carefully removed before the next run. Various welding schedules were tried, each in three variants: 1 - without a backing ring; 2 - with a removable copper ring; 3 - with a metal ring which was left after welding. The quality of the weld was determined metallographically, more than 100 microsections having been examined. Based on the results of these experiments, the following optimum conditions were established: 1 - single-V bevel with the included angle of 60-70° should be used for welding

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S/096/62/000/011/005/006
E193/E383

Welding of ...

EI-695R steel tubes (32 mm in diameter, 75 mm wall thickness). A permanent backing ring should be used and the root welds should be made with the AK -13-15 (AZh-13-15) electrodes, 2.5 mm in diameter; 2 - for joining EI-695R steel tubes, 76 x 18 mm in size, U-shaped bevel with the included angle of 30° should be used; a permanent backing ring should be employed for making the root weld; both V- and U-shaped bevels can be used for joining EP-17 steel tubes of this size because welds made with the TsT-10 electrodes are less prone to hot cracking; 3 - a minimum current (not exceeding 60 - 75 A with electrodes 2.5 mm in diameter, or 80 - 100 A with electrodes 3 mm in diameter) should be used; the crater in the weld should be filled in before the electrode is changed and the arc should be broken at a distance of 8 - 10 mm from the crater; narrow welds should be deposited almost without transverse movement of the electrode; each weld, after cooling to 60 - 70 °C, should be cleaned with an abrasive wheel. These recommendations were followed in the fabrication of the steam superheater and the steam conduit pipe of the boiler PK-31. Destructive and non-destructive tests showed that no cracking occurred in the welds.

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S/096/62/000/011/005/006
E193/E383

Welding of ...

all of which conformed to the quality standards set by the process-control specifications. Several conclusions were reached. 1) Although satisfactory metal-arc welded butt-joints in tubes, made of the new austenitic steels EI-695R and EP-17, can be obtained, the welding technique employed requires great care and rigorous control at every stage of the fabrication process. As a result, the technique is time-consuming, and its use can be economically justified in the manufacture of experimental plant only. 2) The austenitic electrodes AZh-13-18 (AZh-13-18) and AZh-13-15 cannot be recommended for welding tubes of steel EI-695R under industrial conditions. Strongly adhesive slag formed by these electrodes has to be carefully removed after each run and even then it cannot be guaranteed that hot cracks will not occur. Further development work is required to change the nature of the slag formed by these electrodes and to eliminate the tendency of the welds to hot cracking. 3) The UT-16 (TsT-16) electrodes can be recommended for welding steel EP-17 tubes. There are 7 figures and 3 tables.

ASSOCIATIONS: Yuzhteploenergomontazh-MF, "Orgenergostroy" - Kiev
Card 4/14 Politekhnikheskiy institut (Kiyev Polytechnical Institute)

GOTLIB, Ye.A., inzh.; POLYAKOVA, R.B.k inzh.; YASHCHENKO, Ya.V., inzh.

Welding of pipes made with EI-695R and EP-17 make austenite steels.
Teploenergetika 9 no.11:63-67 N '62. (MIRA 15:10)

1. Yuzhteploenergomontazh, Vsesoyuznyy institut po proyektirovaniyu
organizatsiy energeticheskogo stroitel'stva i Kiyevskiy politekhni-
cheskiy institut.

(Pipe, Steel—Welding)

L 40872-66 EWT(1) WW

SOURCE CODE: UR/0124/65/000/011/B088/3088

ACC NR: AR6014924

AUTHOR: Yashchenko, Ya. V.

TITLE: Investigation of the effect of audio frequency vibration on the heat exchange rate in viscous media

SOURCE: Ref. zh. Mekhanika, Abs. 11B611

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. teploenerg., no. 1, 1964, 15-20

TOPIC TAGS: heat exchange, audio frequency oscillator, convective heat transfer, viscous fluid

ABSTRACT: The intensification of heat exchange due to vibration of the liquid (water and transformer oil) under conditions of free convection was investigated experimentally. A current-heated tube of diameter 2.88 mm served as the operating unit and an electromagnetic automobile audio signal was used as the vibrator. The experiments were carried out at frequencies of 50, 90, 126, 180, and 300 hz and at amplitudes of 0.4 to 2.6 mm. The temperature of the liquid was varied from 20 to 80C. On the basis of the experimental data with vibration in the indicated range of the parameters, the dimensionless relation $N^* = 0.29 (R \cdot P)^{0.44}$ is obtained, where N^* and R^* are the Nusselt and Reynolds numbers during vibration and P is the Prandtl number. The mean square vibration rate of oscillation is used as the characteristic velocity in the value of R^* . The maximum ratio of the dimensionless number N^* to the number N (without

Card 1/2

L 40872-66

ACC NR: AR6014924

vibration) reached the value $N^*/N = 21$ in the experiments under consideration.
Bibliography of 6 citations. V. P. Lukash /Translation of abstract/

SUB CODE: 20

Cord 2/2 11b

ACC NR: AP7004397 (✓) SOURCE CODE: UR/0226/67/000/001/0044/0046

AUTHOR: Miroshnikov, V. N.; Yashchenko, Ya. V.

ORG: Institute for Problems in Science of Materials, AN UkrSSR, (Institut problem materialovedeniya, AN UkrSSR); Kiev Polytechnic Institute (Kiyevskiy politekhnicheskii institut)

TITLE: Set up for studying the oxidation of packing materials in water vapor with superhigh parameters

SOURCE: Poroshkovaya metallurgiya, no. 1, 1967, 44-46

TOPIC TAGS: high pressure research, oxidation, high temperature oxidation, parameter, packing material, water vapor, vapor pressure

ABSTRACT: A set-up for measuring oxidation processes in materials used in water-vapor medium at superhigh parameters is described. The set-up is applicable at vapor pressures of up to 140 atm and temperatures up to 570C. It is part of boiler plant PK-31, also described in this paper. Orig. art. has: 2 figures. [Based on authors' abstract]

[AM]

SUB CODE: 11, 13/SUBM DATE: 02Aug66/ORIG REF: 002/
Card 1/1

GORENSHTEYN, M.M., kand.tekhn.nauk; KIRILLOV, B.S., kand.tekhn.nauk;
PEACHENKO, V.K., inzh.; GOLTVENKO, A.I., inzh.; POGORZHEL'SKIY,
V.I., inzh.; BARANETS, P.D., inzh.; YASHCHENKO, Z.A., inzh.;
FIL'CHAKOVA, V.A., inzh.

Establishing the most satisfactory conditions for rolling on
blooming mills with increased load on the main driving motor.
Izv. vys. ucheb. zav.; chern. met. no.3:91-101 Mr '58.

(MIRA 11:5)

1.Zhdanovskiy metallurgicheskiy institut i zavod "Azovstal".
(Rolling mills--Electric driving)

AUTHORS: Gorenshteyn, M.M., Candidate of Technical Sciences, Docent,
and Yashchenko, Z.A., Engineer

TITLE: Investigation of the Conditions of Rolling Rail-steel
Ingots of Increased Weight in the Blooming Mill 1170
(Issledovaniye rezhima prokatki utyazhelennykh rel'sovykh
slitkov na bluminge 1170)

PERIODICAL: Stal', 1958, Nr 8, pp 711 - 715 + 1 plate (USSR)

ABSTRACT: An investigation was carried out for the purpose of
establishing rational rolling regimes for 9.76-ton rail-
steel ingots, so as to secure a higher output without
overheating of the motor under normal operating conditions.
The investigation was carried out in two stages; in the
first stage, the initially developed scheme of reduction,
as enumerated in Table 1, was used. In the second stage,
an improved regime was used which has since been adopted
for normal production (Table 2). During the first stage
of the experiments, the following parameters were recorded
oscillographically (film speed 10-50 mm/sec): current
intensity, voltage, power and rpm of the main (7 000 hp)
motor, torque variations of the lower spindle; the
50 cps current was used for time marking. During the
second stage of the investigations, the recordings were
made on a 9-loop Siemens oscillograph with a film speed
of 22 mm/sec and, in addition to the previously enumerated

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Investigation of the Conditions of Rolling Rail-steel Ingots of
Increased Weight in the Blooming Mill 1170 SOV/133-58-8-10/30

parameters, the changes in the rpm and the current consumption of the motor of the pressure installation were recorded; furthermore, the degrees of reduction in the metal temperature after the first and before the last pass were measured. It was found that the developed regimes for rolling 9.76-ton ingots of 270x280 mm permit maintaining a high productivity under normal conditions of operation of the main motor of about 7 000 hp, without causing overheating. The basic condition of successfully reducing the rms current intensity to 92-94% of the nominal value is strict standardisation of the rolling speed, limiting the rpm during the first nine passes. Relations have been established which govern the character and the magnitude of the influence of speed control on reducing the rms current intensity; the changes of the rolling-speed regimes under conditions of manual control of the main motor; the standardisation of the rpm during gripping, during steady-state rolling and ejection. All these are important not only for the concrete case of rolling very heavy ingots but also when evolving new and more intensive reduction regimes for

Card 2/3

Investigation of the Conditions of Rolling Rail-steel Ingots of
Increased Weight in the Blooming Mill 1170 SOV/133-58-8-10/30

ingots of current weights. By taking into consideration the
relations established in the experiments, it is possible to
avoid overheating of the main motor.
There are 4 figures and 2 tables.

ASSOCIATIONS: Zhdanovskiy metallurgicheskiy institut (Zhdanov
Metallurgical Institute) and Zavod "Azovstal'"
("Azovstal'" Works)

1. Steel--Processing
2. Rolling mills--Operation
3. Rolling mills--Equipment

Card 3/3

S/137/61/000/012/074/149
A006/A101

AUTHORS: Val'ter, O.I., Kostyuk, V.A., Kologrivov, N.P., Yashchenko, Z.A.

TITLE: Studying the nature of metal deformation during rolling with the aid of radioactive isotopes

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 1-2, abstract 12D6 (V sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR, T. 3", Moscow, Gostoptekhzdat, 1961, 207 - 209)

TEXT: The investigation was made during the rolling of P-50 (R-50) type rail sections from an ingot weighing 9.76 tons, and of a Nr.36 double Tee beam section, rolled from a killed steel ingot weighing 6.75 tons. The ingots were rolled in conventional order. The nature of metal deformation in these sections was studied with the aid of the P³² radioactive isotope. The P³² isotope was introduced by separate portions and at certain intervals into the mold with the molten metal. Thus a series of zones were obtained during the crystallization process. The deformation of these zones during rolling should reflect the nature of the flow and the metal. A method was developed to study the deformation of

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Studying the nature of metal deformation ...

S/137/61/000/012/074/149
A006/A101

composite rolled sections and data were obtained which are of practical interest -
for calibrating operators when developing new and corrected existing grooves.

N. Yudina

[Abstracter's note; Complete translation]

Card 2/2

YASHCHENKO, Z.A., inzh., referent; SKLYARENKO, N.K. [translator]

Planetary rolling mill for hot strip rolling (from
"La metallurgia italiana," no.4, 1961). Met. i
gornorud. prom. no.4:95 JI-Ag '62.
(Italy--Rolling mills)

YASHCHENKO, Z.G.

Using electric prospecting for studying the occurrences of karst
in the Angara and Western Dvina Valleys. Izv. vys. ucheb. zav.;
geol. i razv. 2 no.1:104-110 Ja '59. (MIRA 12:10)

1. Institut "Gidroenergoprojekt."
(Angara Valley--Karst)
(Western Dvina Valley--Karst)
(Electric prospecting)

YESAKOV, I.S.; YASHCHENKO, Z.G.

Interpreting vertical electric sounding curves by the T method.
Izv. i prom. geofiz. no.30:50-54 '59. (MIRA 12:12)
(Electric prospecting)

YASHCHENKO, Z.G.; YESAKOV, I.S.

Use of electric prospecting in studying the elastic properties
of igneous rocks. Razved. i prom. geofiz. no. 33:23-29 '59.
(MIRA 13:4)

(Rocks--Electric properties) (Elasticity)

NIKITIN, V.N., inzh.; YASHCHENKO, Z.G., inzh.

Determining dynamic moduli of elasticity in research for the
Chirkey Hydroelectric Power Station. Gidr.stroi. 33 no.4:37-
38 Ap '63. (MIRA 16:4)
(Chirkey Hydroelectric Power Station—Rocks—Elastic properties)

YASHCHENKO-KARTSEVA, A.G. [IAschenko-Kartseva, A.H.]

Effect of the ligature of the abdominal aorta on blood pressure, respiration, and reflex excitability of the spinal cord. Fiziql. zhur. [Ukr.] 7 no.6:793-802 N-D '61. (MIRA 15:3)

1. Laboratoriya fiziologii dykhaniya Instituta fiziologii im. A.A. Bogomol'tsa AN USSR, Kiyev.
(AORTA)
(LIGATURE (SURGERY))

YASHCHENOK, V.

Banner of competition is evident to all. Sov.shakht. 13 no.1:22-
23 Ja '64. (MIRA 17:3)

1. Predsedatel' Kadiyevskogo gorodskogo komiteta professional'nogo
soyuza ugol'shchikov.

YASHIN, F. I.

Utilizing the experience of the best grinding machine operators
Sverdlovsk, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry
Urals-Sibirskoe otd-nie 1952. 49 p.

(Novatory proizvodstva) (54-18068)

TJ1260.12

YASHCHERITSYN, P. I.

Cutting Machines

Use of hard alloy cutters. *Podshipnik*, no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952. Unclassified.

YASHCHERITSYN, P. I.

GRINDING AND POLISHING

Experience in grinding tempered steel parts. Podshipnik no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

YASHCHERITSYN, P. I.

GRINDING AND POLISHING

Increasing Productivity and coefficient of utility of centerless grinder. Podshipnik
no. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

YASHCHERITSYN, P.I.; LOSKUTOV, V.V., kandidat tekhnicheskikh nauk,
retsensent; BUKHVALOVA, K.I., inzhener, redaktor; DUGINA, N.A.,
tekhnicheskiiy redaktor

[High-speed grinding] Skorostnoe shlifovanie. Moskva, Gos.
nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1953. 110 p.
[Microfilm] (MLRA 7:10)
(Grinding and polishing)

YASHCHENRITSYN, R.I.; GORNLOV, V.M., inzhener, retsentsent; LOSKUTOV, V.V.,
kandidat tekhnicheskikh nauk, redaktor; DUGINA, N.A., tekhnicheskii
redaktor

[Grinding] Shlifovanie. Moskva, Gos. nauchno-tekhn. izd-vo mashino-
stroitel'noi lit-ry, 1954. 53 p. (Nauchno-populiarnaya biblioteka
rabochego stanochnika, no.19) [Microfilm] (MLRA 8:2)
(Grinding and polishing)

YASHCHENKO I. I.

YASHCHENKO, P. I.; MEL'NIK, S. L.; CHERNYAK, I., redaktor; TRUKHANOVA, A.,
tekhnicheskiy redaktor

[The new and the progressive in industry; work practices of machine
building factories in Minsk] Novoe, peredovoe v proizvodstvo; iz
opyta raboty mashinostroitel'nykh zavodov goroda Minska. Minsk, Gos.
izd-vo BSSR, 1955. 43 p. (MLRA 9:1)
(Minsk--Machinery industry)

KOSTEIN, V.V.; GOREZKO, P.A.; YASHCHERITSYN, P.I., kandidat tekhnicheskikh
nauk, redaktor; ALEKSANDROVICH, Kh., tekhnicheskiy redaktor

[Sulfidation of rubbing surfaces] Sul'fidirovanie poverkhnostei
trenia. Minsk, Izd-vo Akademii nauk BSSR, 1955. 89 p.
(Friction) (Surfaces (Technology)) (MLRA 9:1)

112-57-7-14860

Translation from: Referativnyy zhurnal, Elektrotehnika, 1957, Nr 7, p 154 (USSR)

AUTHOR: Yashcheritsyn, P. I., and Karchan, Ya. S.

TITLE: Some Problems of Automation of Control in the Process of Grinding
(Nekotoryye voprosy avtomatizatsii kontrolya v protsesse shlifovaniya)

PERIODICAL: Sb.: Mashinostroitel' Belorussii, Minsk, 1956, Nr 1(2), pp 135-144

ABSTRACT: Bibliographic entry.

Card 1/1

YASHCHERITZYN, P.I., kand.tekhn.nauk; KARCHAN, Ya.S., inzh.

Automation of the production line of certain metal-cutting
equipment. Mash.Bel. no.4:122-131 '57. (MIRA 11:9)
(Metal cutting) (Automatic control)

YASHCHERITSYN, P.I., kand.tekhn.nauk; KOSACHEVSKIY, L.N., inzh.

Effect of some technological factors on the surface smoothness
and the durability of antifriction bearing balls. Mash.Bel.
no.4:132-137 '57. (MIRA 11:9)
(Ball bearings)

YASHCHERITSYN, P.I.
P.I.

SOV/2785

PHASE I BOOK EXPLOITATION

25(5)
Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti.
Belorusskoye respublikanskoye pravleniye

Puti sovershenstvovaniya tekhnologicheskikh protsessov na Minskom
podshipnikovom zavode (Improving Technological Processes at the
Minsk Bearing Plant) Minsk, Gos. izd-vo BSSR, 1958. 226 p.
2,000 copies printed.

Eds.: M. Baranovskiy and F. Kashtanov; Tech. Ed.: N. Stepanova.

PURPOSE: This collection of articles is intended for industrial and
mechanical engineers.

COVERAGE: The collection of articles reviews the attainments of the Minsk State
Bearing Plant since its entry into production during the Fifth Five-Year
Plan and a description is given of the methods adopted by the plant to raise the
technological levels of production through introduction of new machinery and
modern production processes and through the modernization of existing equipment.
The role of Party work in the "struggle" for technological progress is also re-
viewed. The introduction mentions the achievements of the following technical

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APPROVED FOR RELEASE

SOV/2785

Improving Technological Processes (Cont.)

personnel: P.A. Kovalenko, assistant director of the tooling shop; engineers V.A. Feygin, A.A. Malakhovskiy, and A.F. Segodnik; designer M.Ye. Makhanev; and technologists Ye.S. Artyukhovskaya and A.A. Desyatkovaya. There are no references.

TABLE OF CONTENTS:

Introduction 3

Yashcheritsyn, P.I. (Candidate of Technical Sciences, Director of the Plant),
Basic Ways of Improving the Production Technology of Roller Bearings 6

Mukhlya I.Ya. (Secretary of the Party Bureau of the Minsk State
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AVAILABLE: Library of Congress (TJ1061.N37)

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PHASE I BOOK EXPLOITATION

SOV/3695

Yashcheritsyn, Petr Ivanovich

Shlifovaniye (Grinding) 2nd ed. Moscow, Mashgiz, 1958. 62 p.
(Series: Nauchno-populyarnaya biblioteka rabocheho stanochnika,
vyp. 20) 18,500 copies printed.

Reviewer: V.M. Gorelov, Engineer; Ed.: V.V. Loskutov, Candidate
of Technical Sciences; Tech. Ed.: N.A. Dugina; Executive Ed.
(Ural-Siberian Division, Mashgiz): G.A. Sarafannikova.

PURPOSE: This booklet is intended for machine-tool operators.

COVERAGE: This booklet describes the process of machining metal
parts by grinding. It discusses surface and internal center and
centerless cylindrical grinding as well as high-speed grinding.
The structure and composition of abrasive wheels is described.
No personalities are mentioned. No references are given.

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YASHCHERITSYN, P.I., kand.tekhn.nauk; KARCHAN, Ya.S., inzh.

Automation of certain technological processes. Mash.Bel. no.5:
112-126 '58. (MIRA 12:11)
(Automation)

SOV/123-60-1-447

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1960, No 1,
pp 50 - 51 (USSR).

AUTHOR:

Yashcheritsyn, P.I.

TITLE:

Technological Problems Concerning the Further Development of
Automation in Machine Construction

PERIODICAL:

Byul. tekhn.-ekon. inform. (Sovmarkhoz BSSR), 1958, No 7 - 8,
pp 31 - 36

ABSTRACT:

It is pointed out that the development of automation in machine construction should be accompanied by an increased efficiency of mechanical operations. This may be attained with the aid of processes with continuous operating cycle, by increasing the length of the tool cutting edge, by applying interchangeable adjustment of automatics and improving the design of grinding machines. Grinding machines should be equipped with servo feeds which make it possible to increase the operating efficiency by 30%, with mechanisms for the compensation of disk wear, warranting a constant rotation speed of the disk ✓

Card 1/2

SOV/123-60-1-447

Technological Problems Concerning the Further Development of Automation in
Machine Construction

in proportion to its wear. The author emphasizes the necessity of developing standard versions of automatic lines which would make it possible to design standardized line units (automatic operating devices, storing devices, conveyor installations, etc.), the manufacture of which could be centralized in specialized plants. It is necessary to solve some problems of organization in order to speed up the introduction of automated processes. ✓

B.I.M.

Card 2/2

PHASE I BOOK EXPLOITATION SOV/3447

Yashcheritsyn, P.I., Candidate of Technical Sciences, Docent

Kachestvo poverkhnosti i tochnost' detaley pri obrabotke abrazivnymi instrumentami (Quality of Surface and Accuracy of Parts in Machine With Abrasive Tools) Minsk, Gos. izd-vo BSSR, 1959.
230 p.

Ed.: I. Chernyak; T ch. Ed.: N. Stepanova.

PURPOSE: This book is intended for technical personnel concerned with the quality of machined surfaces.

COVERAGE: The book deals with grinding accuracy as affected by such factors as thermal phenomena and properties of the individual components of a system of grinding elements. Accuracy of surface grinding, external centerless grinding, internal grinding, polishing, and lapping are discussed. No personalities are mentioned. There are 19 references, all Soviet.

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AVAILABLE: Library of Congress

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VK/jb
5-12-60

YASHCHERITSYN, P.I., kand.tekhn.nauk

Quality and accuracy of ground surfaces. Mash.Bel. no.6-117-140
'59. (MIRA 13:6)

(Grinding and polishing)

YASHCHERITSYN, P.I., dotsent, kand.tekhn.nauk

Effect of heat phenomena in the technological system and properties of the cooling fluid on the precision of finish grinding.
Mash.Bel. no.6:141-151 '59. (MIR^a 13:6)
(Grinding and polishing)

YAKOVLEV, Georgiy Mikhaylovich; YASHCHERITSYN, P., red.; STEPANOVA,
N., tekhn.red.

[Some problems in high-speed milling and turning] Nekotorye
voprosy skorostnogo frezerovaniia. Minsk, Gos.izd-vo BSSR.
Red.nauchno-tekhn.lit-ry, 1960, 296 p. (MIRA 13:5)
(Metal cutting)

YASHCHERITSYN, Petr Ivanovich; KASHTANOV, F., red.; DOMOVSKAYA, G.,
tekhn. red.

[Increasing the durability of ground parts; practice of the
bearing industry] Povyshenie dolgovechnosti shlifovannykh
detalei; iz opyta podshipnikovoi promyshlennosti. Moskva,
Gos.izd-vo BSSR. Red.proizvodstvennoi lit-ry, 1961. 109 p.
(MIRA 15:1)

(Grinding and polishing)

YASHCHERITSYN, Petr Ivanovich; KASHTANOV, F., red.; STEPANOVA, N.,
tekhn. red.

[Our practice in the modernization of equipment and automation
of production processes] Nash opyt modernizatsii oborudovaniia
i avtomatizatsii proizvodstva. Minsk, Gosizdat BSSR, 1962. 96 p.
(MIRA 16:1)

1. Direktor Minskogo podshipnikovogo zavoda (for Yashcheritsyn).
(Minsk--Bearing industry) (Automation)

ACCESSION NR AM4021972

BOOK EXPLOITATION

S/

Yashcheritsyn, Petr Ivanovich; Zhaltnerovich, YEvgeniy Aleksandrovich

Grinding of metals (Shlifovaniye metallov), Minsk, Izd-vo "Belarus", 1963,
355 p. illus., biblio. 5,000 copies printed.

TOPIC TAGS: Metal grinding, automation, abrasive, grinding wheel

TABLE OF CONTENTS [abridged]:

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SUB CODE: ML

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NR REF SOV: 039

OTHER: 000

DATE ACQ: 09Apr64

Card 2/2

VEDUTA, Nikolay Ivanovich; YASHCHENITSYN, I.I., doktor tekhn.
nauk, red.

[Economic efficiency of new techniques] Ekonomicheskaya
effektivnost' novoy tekhniki. Minsk, Izd-vo "Nauka,"
1964. 335 p. (MIRA 17:7)

YASHCHERITSYN, P.I.

Effect of the structure of the operational cycle of internal
grinding machines on the quality of machined surfaces. Stan.
i instr. 36 no.10:13-15 0 '65. (MIRA 18:11)

YASHCHERITSYN, P.I., doktor tekhn.nauk, prof.

Effect of pickling on the working surface of machine parts.
Vest.mashinostr. 45 no.11:43-46 N '65.

(MIRA 18:12)

YASHEVERIDZE, P.I., doktor tekhn. nauk, prof.

Effect of fine grinding and polishing on the smoothness and
quality of machined surfaces. Vest. mashinostr. 45 no.6:69-73
Ja '65. (MIRA 18:6)

YASHCHERITSYN, P.I., kand. tekhn. nauk

Wear of abrasive tools and its effect on the engineering properties
of ground surfaces. Nauka - proizv. no.1:4-14 '63.

(MIRA 18:3)

YASHCHIKOVA, A. I. (Engr)

Dissertation: "The Effect of Alloy Composition of Interatomic Bonds in the Silver-Aluminum System." Cand Tech Sci, Moscow Order of the Labor Red Banner Institute of Steel imeni I. V. Stalin, 10 Jun 54. (Vechernyaya Moskva, Moscow, 1 Jun 54)

SO: SUM 318, 23 Dec 1954

21170

24.7900 (1147, 1158, 1055)

S/141/60/003/006/009/025
EO32/E114

AUTHOR: Yashchin, E.G.

TITLE: Excitation of a Paramagnetic by Magnetisation Reversal

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol.3, No.6, pp. 989-994

TEXT: The problem is formulated as follows. Consider the behaviour of a magnetic moment in a magnetic field which is rotating but is constant in magnitude. Neglecting relaxation and friction effects the equation of motion is given by:

$$(d/dt)M = \gamma [MH] \quad (1)$$

where γ is the gyromagnetic ratio of an electron (or nucleus), M is the magnetic moment and H is the magnetic field. In the case of a rotating field of the form

$$H_z = H_0 \cos(\Omega t), \quad H_y = H_0 \sin(\Omega t) \quad (2)$$

the magnetic moment will "follow" the magnetic field if the angular velocity of the magnetic field Ω is much smaller than

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E032/E114

Excitation of a Paramagnetic by Magnetisation Reversal

$\omega = |\gamma| H_0$. This can be particularly easily verified if \underline{M} and \underline{H} are parallel at the initial instant of time, in which case it is sufficient to substitute into Eq. (1) a magnetic moment having the same time dependence as the magnetic field. Thus, a slow (adiabatic) rotation of the magnetic field does not excite the system, i.e. it does not increase its energy. Only when the magnetic field is rapidly (non-adiabatically) rotating will the magnetic moment lag behind the field (energy will increase; cf. Ryzhkov et al. Ref.5). The excitation of a paramagnetic system may therefore be achieved, for example, by rapid reversal of the magnetic field, the reversal taking place in a time interval much smaller than the relaxation time T_1 . As soon as the magnetic field passes through zero the magnetic moment will be antiparallel to the field and the system will be excited. Further growth in the magnetic field will adiabatically increase the energy of the system, i.e. in proportion to the increase in the frequency. Consider now a magnetic field of the form $\underline{H}(t) = \underline{H}_{\max} t/T$ and introduced at an angle of $180^\circ - \alpha$ to a constant magnetic field

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Excitation of a Paramagnetic by Magnetisation Reversal

\underline{H}_0 . As the field $\underline{H}(t)$ increases, the resultant magnetic field will rotate in the zy plane (containing \underline{H}_0) and will vary in magnitude. The present author is concerned with the case where at $t = 0$ the magnetic moment is parallel to the constant field \underline{H}_0 . At subsequent times the magnetic moment may lag behind the resultant magnetic field \underline{H}_{res} and the lag is defined by the angle θ where $\cos \theta$ is given by:

$$\cos \theta = \frac{M_y \sin \phi + M_z \cos \phi}{|M|} \quad (3)$$

In order to determine θ , Eq.(1) must be solved subject to the magnetic field law

$$\underline{H}_{res} = \underline{H}_0 + \underline{H}_t = \underline{y}^0 H_0 \sin \alpha + \underline{z}_0 [H(t) - H_0 \cos \alpha] \quad (4)$$

Eqs. (1), (3) and (4) are then rewritten in a dimensionless form using the substitutions

$$m = \underline{M}/|M|, \quad \omega_0 = -\gamma H_0, \quad \omega_{max} = -\gamma H_{max},$$

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$$\tau = \omega_0 t, \quad \tau_0 = \omega_0 T, \quad \underline{h} = \underline{H}_{res}(\underline{t})/H_0, \quad h_{max} = H_{max}/H_0.$$

It is then necessary to find

$$\theta = \arccos(m_y \sin \psi + m_z \cos \psi) \quad (3a)$$

subject to the initial condition $\tau = 0, \theta = 0$, where m_y and m_z are defined by

$$\begin{aligned} \dot{m}_x &= -m_y h_z + m_z h_y; & \dot{m}_y &= -m_z h_x + m_x h_z; \\ \dot{m}_z &= -m_x h_y + m_y h_x \end{aligned} \quad (1a)$$

and ψ and \underline{h} by

$$\operatorname{tg} \psi(\tau) = \frac{\sin \alpha}{h_{max} \tau/\tau_0 - \cos \alpha}; \quad (4a)$$

$$h_x = 0; \quad h_y = \sin \alpha; \quad h_z = h_{max} \tau/\tau_0 - \cos \alpha.$$

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Excitation of a Paramagnetic by Magnetisation Reversal

The problem has been solved numerically using a digital computer for a number of special cases. Fig.4 shows θ as a function of time for different α ($\omega_0 = 10^{10} \text{ sec}^{-1}$, $\omega_{\text{max}} = 10^{11} \text{ sec}^{-1}$, $T = 10^{-7} \text{ sec}$). A similar case has been considered by Morgenthaler (Ref.6). However, there is a discrepancy between Ref.6 and the present results. The discrepancy is said to be due to incorrect simplifying assumptions introduced in Ref.6 (the term $\psi \cos \theta' \cotan \theta'$ was neglected). Acknowledgements are made to T.N. Pigolkina for solving Eqs.(1a), (3a) and (4a) on the digital computer BESM-2 (BESM-2), and to V.M. Fayn for interest and discussions. There are 5 figures and 8 references: 6 Soviet and 2 non-Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete
Card 5/6 (Scientific Research Radiophysics Institute, Gor'kiy University)

SUBMITTED: July 14, 1960

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EO32/E114

Excitation of a Paramagnetic by Magnetisation Reversal

Fig.4

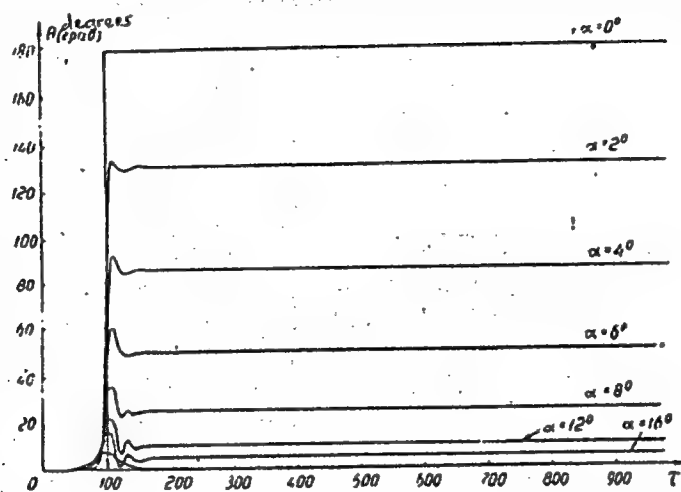


Рис. 4. Зависимость θ от безразмерного времени τ для различных α ($\omega_0 = 10^{10}$ сек $^{-1}$, $\omega_{\text{макс}} = 10^{11}$ сек $^{-1}$, $T = 10^{-7}$ сек).

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83746

S/056/60/038/004/039/048

B006/B056

9.4300(1035,1138,1143)
24.7900

AUTHORS: Aleksandrov, A. P., Khanin, Ya. I., Yashchin, E. G.

TITLE: Observation of the Spontaneous Coherent Radiation² of a Ferrite in a Resonator

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 4, pp. 1334 - 1337

TEXT: As the previously used method of exciting ferrites does not lead to satisfactory results, the authors employed a somewhat different principle based upon the fact that the ferrite is excited at a frequency ν_1 which deviates from the frequency ν_2 of spontaneous radiation. Between excitation and emission is the time $t_2 - t_1$, during which the external magnetic field changes from $H_1 = 2\pi\nu_1/\gamma$ to $H_2 = 2\pi\nu_2/\gamma$, where γ is the gyromagnetic ratio of the electrons. The block diagram of the apparatus used is shown in Fig. 1, and is briefly described. The change of the entire field in time is shown in Fig. 2. With $|H - H_1| \leq \Delta H$, where ΔH is

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83746

Observation of the Spontaneous Coherent
Radiation of a Ferrite in a Resonator

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the half-width of the resonance line of the ferrite, the ferrite enters into interaction with the high-frequency field, and a precession of the magnetic moment with the angle θ is caused. In the following time intervals, the precession frequency does not decrease with the eigenfrequencies of the resonators ($\nu_1 < \nu < \nu_2$) and the angle θ decreases only in

consequence of relaxation processes: $\theta = \theta_0 \exp(-(t-t_1)/\tau)$. With

$|H - H_2| \leq \lambda \pi \Delta \nu_2 / 2\gamma$, the ferrite emits a short pulse which is recorded

and amplified. The experiments were carried out at $\nu_1 = 8900$ Mc/sec;

the field of the electromagnet H equaled 3050 oe at a pulsed field

strength of 700 oe; $t_2 - t_1 = 3 \div 15 \cdot 10^{-9}$ sec. The process of coherent

emission of the spin system in a resonator has already been investigated by V. M. Fayn; his results are used to estimate the energy and power of the emission. For the power of a pulse, the relation

$P = \text{const} \cdot \Delta t_2 \theta_0^2 \cdot \exp[-2(t_2 - t_1)/\tau]$ is obtained, i.e., direct determination

of the relaxation time τ is possible by means of the experiment

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Observation of the Spontaneous Coherent
Radiation of a Ferrite in a Resonator

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described. Fig. 3 shows an oscillogram of emitted signals and of the ferromagnetic resonance. The strong signal is emitted with $H = H_2$, the two weaker ones are the resonances with $H = H_1$. A spherically ground yttrium ferrigarnet was used as ferrite. The authors thank A. G. Gurevich, G. A. Smolenskiy, and K. P. Belov for making the samples available, and they further thank A. M. Leonov for his assistance and V. M. Fayn for his advice. There are 3 figures and 6 references: 1 Soviet, 1 French, and 4 US.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta (Institute of Radiophysics of Gor'kiy State University)

SUBMITTED: December 31, 1959

Card 3/3

28766

S/056/61/041/003/019/020
B113/B102

9,2574 *Le* 1144

AUTHORS: Fayn, V. M., Khanin, Ya. I., Yashchin, E. G.

TITLE: Nonlinear properties of three-level systems

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
no. 3(9), 1961, 986-988

TEXT: A reaction (e.g. polarization P) of a three-level system to two monochromatic signals may serve as characteristics of the nonlinear properties of this system. E_1, E_2, E_3 are assumed to be three levels of a quantum system. An external field $F = E_1 \cdot \cos \Omega_{31} t + E_2 \cdot \cos \Omega_{32} t$ (1) is assumed to act upon this system; the frequencies are $\Omega_{31} \approx (E_3 - E_1)/\hbar$ and $\Omega_{32} \approx (E_3 - E_2)/\hbar$. The equation for the density matrix ρ_{mn} is used in order to determine the field-induced polarization of the system. If in the solution of this equation only the resonance terms with the frequencies Ω_{32}, Ω_{31} , and $\Omega_{31} - \Omega_{32}$ are used and if one goes over to a system of corresponding algebraic equations, then the equation

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Nonlinear properties of three-level...

$P = \rho_{31} \mu_{13} e^{-i\Omega_{31}t} + \rho_{32} \mu_{23} e^{-i\Omega_{32}t} + \rho_{21} \mu_{12} e^{-i(\Omega_{31} - \Omega_{32})t} + c.c. \quad (4)$
is obtained where

$$\rho_{31} = 2i\gamma_{31}\Delta^{-1} [D_{12}^{(0)} [4(\tau_1^{-1} + \gamma_{12}^2\tau_1) + \tau_3\gamma_{12}^2] - D_{12}^{(0)} (2\tau_1 + \tau_3)\gamma_{12}^2],$$

$$\rho_{32} = 2i\gamma_{32}\Delta^{-1} [D_{12}^{(0)} [4(\tau_2^{-1} + \gamma_{12}^2\tau_2) + \tau_3\gamma_{12}^2] - D_{12}^{(0)} (2\tau_2 + \tau_3)\gamma_{12}^2],$$

$$\rho_{21} = \frac{1}{2} [\tau_3\gamma_{12}\gamma_{32} (\rho_{32}/\gamma_{32} + \rho_{31}/\gamma_{31}) - 2\gamma_{12}\gamma_{32}\tau_3\Delta^{-1} [D_{12}^{(0)} [2(\tau_1^{-1} + \gamma_{12}^2\tau_1) - \tau_3\gamma_{12}^2] + D_{12}^{(0)} [2(\tau_2^{-1} + \gamma_{12}^2\tau_2) - \tau_3\gamma_{12}^2]]];$$

$$\Delta = [4(\tau_1^{-1} + \gamma_{12}^2\tau_1) + \tau_3\gamma_{12}^2] [4(\tau_2^{-1} + \gamma_{12}^2\tau_2) + \tau_3\gamma_{12}^2] - (2\tau_1 + \tau_3)^2 \gamma_{12}^2 \gamma_{32}^2;$$

$$\gamma_{12} = \mu_{12}E_{12}/\hbar = \gamma_{21}, \quad \gamma_{32} = \mu_{32}E_{32}/\hbar = \gamma_{23};$$

holds if $\Omega_{31} = (E_3 - E_1)/\hbar$ and $\Omega_{32} = (E_3 - E_2)/\hbar$ and $D_{12}^{(0)}$ and $D_{23}^{(0)}$ are equilibrium differences of the level population, τ_1 and τ_2 are the longitudinal and transverse relaxation times, respectively, and μ_{ml} is the matrix of the dipole moments. (4) indicates that the reaction of the system to two monochromatic signals contains a term with the combined frequency $\Omega_{12} = \Omega_{13} - \Omega_{23}$ which results from the nonlinearity of

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28766

Nonlinear properties of three-level...

S/056/61/041/003/019/020
B113/B102

the system. There are 8 references: 2 Soviet and 6 non-Soviet. The three most recent references to English-language publications read as follows: N. Bloembergen, S. Shapiro. Phys. Rev., 116, 1453, 1959; P. P. Sorokin, M. J. Stevenson, Phys. Rev. Lett., 5, 557, 1960; A. Javan, W. R. Bennett, Jr., A. R. Herriott. Phys. Rev. Lett., 6, 106, 1961.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta (Radiophysics Institute of Gor'kiy State University)

SUBMITTED: June 26, 1961

Card 3/3

FAYN, V.M.; KHANIN, Ya.I.; YASHCHIN, E.G.

Interaction of electromagnetic oscillations in three-level systems.
Izv. vys. ucheb. zav.; radiofiz. 5 no.4:697-713 '62. (MIRA 16:7)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom universitete.

(Radio waves) (Radio)

FAYN, V.M.; KHANIN, Ya.I.; YASHCHIN, E.G.

letter to the editor. Izv. vys. ucheb. zav. radiofiz. 7 no.2:
386. '64 (MIRA 18:1)

ACCESSION NR: AP4019239

S/0056/64/046/002/0695/0709

AUTHORS: Fayn, V. M.; Yashchin, E. G.

TITLE: Contribution to the theory of stimulated Raman emission

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 695-709

TOPIC TAGS: Raman emission, stimulated emission, stimulated Raman scattering, Raman laser self excitation, laser self excitation, fluctuation dissipation theorem, parametric generator, anti Stokes component, laser frequency doubling

ABSTRACT: In view of the recent feasibility of observation of different many-quantum light radiation and absorption processes owing to the development of lasers, the authors construct a theory of two-quantum processes without limitations on the spectrum of the atoms (or molecules) or the fields; this theory deals with the general behavior of an arbitrary quantum system capable

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ACCESSION NR: AP4019239

of resonance absorption in the presence of external forces. An analog is derived of the fluctuation-dissipation theorem, relating the noise in the presence of the external force to the susceptibility of the system in the presence of the same force. This is followed by an analysis of the interaction between electromagnetic waves with inclusion of stimulated Raman emission and a derivation of the self-excitation condition for a Raman laser. The connection between Raman lasers and parametric systems is also discussed. It is shown specifically that if the system under consideration has a natural frequency ω_0 and if it is acted upon by a signal with frequency $\omega_1 > \omega_0$, then negative absorption is produced at a frequency $\omega_2 = \omega_1 - \omega_0 < \omega_1$, so that the system can become unstable against a signal at a frequency ω_2 . Such an instability can occur in particular in a plasma acted upon by an electromagnetic field. It is also noted that by using stimulated Raman emission at a frequency $\omega_2 = 2\omega_1$ (anti-Stokes

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- 4 (2/216) -

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component) it is possible to produce frequency doubling within the laser itself, since the molecular system in the laser is in an inverted state. Orig. art. has: 52 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at Gor'kiy University)

SUBMITTED: 16Jul63

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: PH

NO REF SOV: 008

OTHER: 009

Card 3/3

FAVU, Veniamin Moiseyevich; KHEIN, Yakov Izrailevich. Trinitat
uchastiya: GELMAN, V.N.; YASHCHIN, E.G.; TALANOV, V.I.;
KOZENSBERG, Ye.L.; IVANENKO, N.D., red.

[Quantum radio physics] Kvantovaya radiofizika. Moskva,
Sovetskoe radio, 1965. 607 p. (MIRA 18:3)

ACC NR: AP6036977

SOURCE CODE: UR/0181/66/008/011/3310/3319

AUTHOR: Genkin, G. M. ; Fayn, V. M. ; Yashchin, E. G.

ORG: Gor'kiy State University imeni N. I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet)

TITLE: Nonlinear properties of a crystal lattice

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3310-3319

TOPIC TAGS: ^{nonlinear} crystal, crystal lattice, ~~anharmonic~~ crystal ~~lattice~~ lattice vibration, Green function, cross susceptibility tensor, laser, ~~anharmonic~~ ^{nonlinear} vibration, Raman effect

ABSTRACT: An analysis is made of the nonlinear properties of an ion crystal induced by vibrations in the lattice. Using Green's multi-temporal temperature functions, an expression is obtained for the fourth-rank cross-susceptibility tensor as a function of third and fourth-order anharmonicity in lattice vibrations. Two-quantum, and particularly Raman processes, and the parametric interaction of four waves, are investigated. The contribution of the effects of spatial dispersion

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ACC NR: AP6036977

in a harmonic medium to the third-rank cross-susceptibility tensor is examined.
Evaluations are made of tensor magnitudes. [Based on authors' abstract]

SUB CODE: 20/SUBM DATE: 16Oct65/ORIG REF: 007/OTH REF: 002/ [SP]

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ACCESSION NR: AP4032877

S/0051/64/016/004/0708/0709

AUTHOR: Vergunas, F.I.; Kolotkov, V.V.; Yashin, E.M.; Smirnova, L.I.

TITLE: Some properties of film type electroluminescent capacitors

SOURCE: Optika i spektroskopiya, v.16, no.4, 1964, 708-709

TOPIC TAGS: electroluminescence, electroluminescent capacitor, zinc compound, electroluminophor

ABSTRACT: The authors prepared and tested film type electroluminescent capacitors. The films were obtained by vacuum sublimation of yellow EL-580 electroluminophor (a zinc sulfide phosphor - composition not specified). There were prepared low-voltage and high-voltage film capacitors; the latter differed from the former by the presence of a dielectric layer between the sublimated film and the electrode. The films were about 1 micron thick; the electrodes were made of SnO_2 and Al. The variation of brightness as a function of the applied voltage is shown in the figure (Enclosure 01). As regards both their voltage and frequency characteristics the low and high-voltage capacitors differed from each other and from power-filled conventional capacitors. The low-voltage capacitors rectified the current in the range of low voltages. Where frequency dependence of the brightness is concerned the low-vol-

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tage films are characterized by a horizontal curve (the brightness is frequency independent); the high-voltage capacitors by a rising straight line; the powder capacitors by a curve with a flat maximum. None of the film capacitors exhibited photoluminescence under stimulation by 354 and 310 mμ radiation. Investigation of the brightness waves showed that the films have only one principal peak in phase with the voltage. For films with a thick dielectric layer the peak was observed for both polarities; for the films with a thin dielectric layer the brightness peak is evinced only when the Al electrode is negative. Orig.art.has: 2 figures.

ASSOCIATION: none

SUBMITTED: 15Jul63

DATE ACQ: 07May64

ENCL: 01

SUB CODE: OP, EC

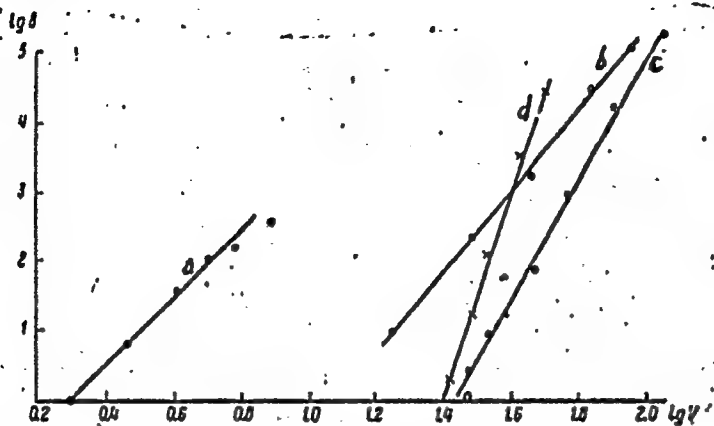
NR REF SOV: 000

OTHER: 001

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ACCESSION NR: AP4032877

ENCLOSURE: 01



Variation of brightness B with voltage V: a) low-voltage film, b) powder, c) high-voltage film with thick dielectric layer, d) film with thin dielectric layer.

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RASHCHETKIN, K.Ye.; YASIN, E.M.

Stresses in a raised pipeline with fastened sections. Transp. i
khran. nefti i nefteprod. no.9;10-12 '64. (MIRA 17:10)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu
nefti i nefteproduktov.

24.3500

66587

SOV/51-7-5-17/21

AUTHOR: Yashchin, P.B.

TITLE: On the Effect of Infrared Light on Luminescence of ZnS-Mn Phosphors

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 5, pp 691-696 (USSR)

ABSTRACT: Luminescence of ZnS-Mn phosphors, excited with ultraviolet frequencies is strongly affected by infrared irradiation. A flash produced by infrared irradiation becomes several hundred times stronger on lowering of temperature from +20°C (Fig 1) to -190°C (Fig 2). At -190°C (the liquid-nitrogen temperature) the steady-state intensity of the orange luminescence band is increased by infrared irradiation while the steady-state intensity of the blue band is lowered by infrared irradiation. Further experiments showed that: (1) the effect of infrared irradiation on luminescence of ZnS-Mn with 10^{-4} g/g of Mn increases with decrease of the ultraviolet excitation intensity, (2) increase of the amount of the Mn activator from 10^{-4} to 10^{-3} g/g lowers the magnitude of the rise of the steady-state intensity of the orange band produced by infrared illumination, (3) an additional activator, e.g. cobalt, (Fig 5) intensifies quenching of the blue band by infrared illumination and lowers the rise of the steady-state intensity of the orange band. Luminescence spectra of ZnS (Fig 3).

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On the Effect of Infrared Light on Luminescence of ZnS-Mn Phosphors

ZnS-Mn (Figs 4 and 5) and ZnS-Mn,Co (Fig 5) were recorded with and without monochromatic infrared illumination. In each of these figures curves 1 represent the effect of ultraviolet excitation (366 mμ) by itself, and curves 2 represent the simultaneous action of ultraviolet and infrared illuminations. The results obtained are due to liberation of electrons from local levels (traps), which produces a flash in the blue band, and liberation of holes from ionized blue centres. Free holes are partially localized again at blue centres and partially recombine with localized electrons without optical emission; this produces quenching of blue luminescence by infrared radiation. In the presence of an activator (Mn) holes liberated from the blue centres may be also localized at non-excited orange centres. This produces an intensification of the orange band. Infrared light liberates also electrons from localized levels and this decreases the number of acts of radiationless recombination of free holes and reduces quenching of the blue band. This means that the effect of infrared light is a superposition of two processes: liberation of holes which produce quenching and liberation of electrons which intensify luminescence. Illumination with infrared light increases the number of optical electrons (liberated from traps) with energies considerably greater than those of thermal electrons. The optical electrons recombine with the blue centres and transfer their

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SOV/51-7-5-17/21

On the Effect of Infrared Light on Luminescence of ZnS-Mn Phosphors

excess energy to these centres. This produces broadening of the blue band. Acknowledgments are made to V.V. Antonov-Romanovskiy, Z.A. Trapeznikova and M.V. Fok for their advice. There are 5 figures and 1 table.

ASSOCIATION: Fizicheskiy Institut, Pol'skoy AN, Varshava (Physics Institute, Polish Academy of Sciences, Warsaw)

SUBMITTED: March 5, 1959

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S/081/62/000/017/056/102
B158/B186

AUTHORS: Vzhesinska, A., Yashchin, P.
TITLE: Quenching the luminescence of ZnS resulting from irradiation
in an atomic reactor
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1962, 366, abstract
17K96 (Rept. Inst. badań jądrow. PAN, no. 248, XIII, 1961,
9 pp, ill. [summaries in Pol. and Eng.])

TEXT: The effect of irradiation in a nuclear reactor on the degree of
luminescence and afterglow from ZnS-luminescent substances obtained at
different calcining temperatures was studied. Luminescent substances,
irradiated by a neutron beam in a nuclear reactor, have less glow
intensity and give more rapid quenching with under-glow from infra-red
rays than non-irradiated substances. With irradiated substances the
quantity of reserve energy is lower than with non-irradiated substances.
[Abstracter's note: Complete translation.]

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